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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,988	07/16/2003	Ron Everett	030353	8827
67524 7590 04/06/2007 FOX ROTHSCHILD, LLP 625 LIBERTY AVENUE PITTSBURGH, PA 15222-3155			EXAMINER MYINT, DENNIS Y	
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			2162	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/620,988		EVERETT, RON	
	Examiner		Art Unit	
	Dennis Myint		2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7-9,11,13,15-37,40-62 and 82-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7-9,11,13,15-37,40-62 and 82-96 is/are rejected.
- 7) ☒ Claim(s) 25,26,35,37,41,43,45,46 and 91 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to Applicant's Amendment, filed on March 22, 2007.
2. In the Amendment filed on March 22, 2007, claims 2, 4, 6, 10, 12, 14, 38, and 39 were cancelled. Claims 1, 5, 9, 11, 13, 15, 16, 18-26, 33-37, 40-46, 49, 52-55, 59-60, 82, 85, and 88 were amended. Claims 63-81 were withdrawn. As such, claims 1, 3, 5, 7-9, 11, 13, 15-37, 40-62, and 82-96 are pending this application. Claims 1, 52, 82, and 85 are independent claims. **This office action is made final.**

Response to Arguments

3. Referring to rejection of claims 1-22, 31-35, 40-46, 49, 51, 52-53, 60-62 and 85-96, Applicant argued that *In response to this rejection the Applicant have amended all currently independent claims of the invention to include the limitation that the data items be "stored on a computer-readable media". The addition of this limitation should render the claims statutory subject matter* (Applicant's argument Page 25 second paragraph).

In response, it is pointed out that said claims are directed to data structures per se. For example, claim 1 as currently amended recites "*a plurality of common, fundamental data structures*". The claimed data structure must have final result(s) achieved, which is/are useful and tangible as set forth in MPEP 2106 (IV)(B)(2)(a). Data structures per se are non-statutory because data structures per se are non-functional

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descriptive materials. The data structures per se as recited in claim 1 comprise no functionality, that is, claim 1 comprises no functions which would produce tangible and concrete results.

MEPE 2106.01 [R-5] states that :

When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, *it is not statutory since no requisite functionality is present to satisfy the practical application requirement*. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because “[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.”). Such a result would exalt form over substance. In *re Sarkar*, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978) (“[E]ach invention must be evaluated as claimed; yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under § 101, the claimed invention, as a whole, must be evaluated for what it is.”) (quoted with approval in *Abele*, 684 F.2d at 907, 214 USPQ at 687). See also *In re Johnson*, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) (“form of the claim is often an exercise in drafting”). Thus, nonstatutory music is not a computer component, and it does not become statutory by merely recording it on a compact disk. Protection for this type of work is provided under the copyright law.

When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory and should be rejected under 35 U.S.C. 101. In addition, USPTO personnel should inquire whether there should be a rejection under 35 U.S.C. 102 or 103. USPTO personnel should determine whether the claimed nonfunctional descriptive material be given patentable weight. USPTO personnel must consider all claim limitations when determining patentability of an invention over the prior art. In *re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 403-04 (Fed. Cir. 1983). USPTO personnel may not disregard claim limitations comprised of printed matter. See *Gulack*, 703 F.2d at 1384, 217 USPQ at 403; see also *Diehr*, 450 U.S. at 191, 209 USPQ at 10. However, USPTO personnel need not give patentable weight to printed matter absent a new and unobvious functional relationship between the printed matter and the substrate. See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); *In re Ngai*, 367 F.3d 1336, 70 USPQ2d 1862 (Fed. Cir. 2004).

As such, Applicant's arguments regarding the rejection of said claims under 35 U.S.C. 101 is invalid and rejection of said claims under 35 U.S.C. 101 is maintained despite the added limitation "wherein the plurality of common fundamental data structures are stored on a computer readable medium in non-tabular form".

As per Applicant's arguments with respect to the rejection under 35 U.S.C. 102 (e) and 35 U.S.C. 103 (a), new grounds of rejections are introduced in light of the amendments made.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1, 3, 5, 7-9, 11, 13, 15-35, 40-46, 49, 52-53, 60-62 and 82-96 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 as currently amended recites "*a plurality of common, fundamental data structures*". The claimed data structure must have final result(s) achieved, which is/are useful and tangible as set forth in MPEP 2106 (IV)(B)(2)(a). Data structures per se are non-statutory because data structures per se are non-functional descriptive materials. The data structures per se as recited in claim 1 comprise no functionality, that is, claim 1 comprises no functions, which would produce tangible and concrete results.

MEPE 2106.01 [R-5] states that :

When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, *it is not statutory since no requisite functionality is present to satisfy the practical application requirement*. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because “[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.”). Such a result would exalt form over substance. In *re Sarkar*, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978) (“[E]ach invention must be evaluated as claimed; yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under § 101, the claimed invention, as a whole, must be evaluated for what it is.”) (quoted with approval in *Abele*, 684 F.2d at 907, 214 USPQ at 687). See also *In re Johnson*, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) (“form of the claim is often an exercise in drafting”). Thus, nonstatutory music is not a computer component, and it does not become statutory by merely recording it on a compact disk. Protection for this type of work is provided under the copyright law.

When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory and should be rejected under 35 U.S.C. 101. In addition, USPTO personnel should inquire whether there should be a rejection under 35 U.S.C. 102 or 103. USPTO personnel should determine whether the claimed nonfunctional descriptive material be given patentable weight. USPTO personnel must consider all claim limitations when determining patentability of an invention over the prior art. In *re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 403-04 (Fed. Cir. 1983). USPTO personnel may not disregard claim limitations comprised of printed matter. See *Gulack*, 703 F.2d at 1384, 217 USPQ at 403; see also *Diehr*, 450 U.S. at 191, 209 USPQ at 10. However, USPTO personnel need not give patentable weight to printed matter absent a new and unobvious functional relationship between the printed matter and the substrate. See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); *In re Ngai*, 367 F.3d 1336, 70 USPQ2d 1862 (Fed. Cir. 2004).

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Therefore, rejection of said claims under 35 U.S.C. 101 is maintained despite the added limitation "wherein the plurality of common fundamental data structures are stored on a computer readable medium in non-tabular form".

Claims 3, 5, 7-9, 11, 13, 15-35, 40-46, 49, 52-53, 60-62 and 82-96 are directed to data structures per se and are rejected under 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 7, 9, 11, 13, 15, 16, 53, 82-87, 89, and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. (hereinafter "White") (U.S. Patent Number 6609132) in view of Abineri et al. (hereinafter "Abineri") (U.S. Patent Application Publication Number 2005/0044079).

As per claim 1, White is directed to a data management system in a computing environment (Column 5 Lines 3-25) and teaches the limitations:

- a) "a plurality of common, fundamental data structures" (Column 6 Line 66 through Column 7 Line 11); and
- b) "each of said common fundamental data structures also encapsulating

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references to other common fundamental data structures encapsulating associated data instances" (Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43); and

"wherein said plurality of common fundamental data structures stored on a computer-readable media" (White Figure 1 and Column 4 Lines 47-55, i.e., *the various computational routines of the present invention are typically stored persistently in a storage device 11 (which may be a hard disk, drive, optical disk drive or other persistent storage means) that is operably coupled to memory 3*).

White does not explicitly teach the limitation: "in non tabular-form". Examiner interprets this limitation "in non-tabular form" in light of the specification that said data structures does not employ tables.

On the other hand, Abineri teaches the limitation:

"in non-tabular form" (Abineri, Paragraph 0061-0066). Abineri teaches parent classes and children with attributes, organizing data without using tables.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of organizing data without using tables as taught by Abineri to the system of White so that the resultant system would comprise storing data structures in non-tabular form. One would have been motivated to do so in order to emphasize generic relations between data structures (Abineri, Paragraph 0061)

As per claim 3, White teaches the limitation:

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“ wherein a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance” (Column 6 Line 22-43 and Column 7 Line 18-38).

As per claim 7, White is directed to the limitation:

“wherein said encapsulated references are in at least one dimensions; and each of said at least one dimensions corresponds to a type of association” (Column 7 Line 5-11).

As per claim 9, White is directed to the limitation:

“wherein said common fundamental data structures are application independent and are generally the same for all of said data instances” (Column 7 Line 61 through Column 8 Line 3).

Claims 11, 13, 15, and 16 and 53 are rejected on the same basis as claim 9.

As per claim 82, White in view of Abineri is directed to a method to convert a non-data instance centric database to a data instance centric database (Abineri, Paragraph 0106) and teaches the limitations:

“creating data instances in said data instance centric database representing elements of said non-data-instance centric database schema and data elements of said non-data-instance centric database” (Paragraphs 0049-0068); and

“creating associations amongst the said data instances in said data centric database representing the relationships between said data elements and said schema elements of the non-data-instance centric database and storing said association as a reference to each associated data instances stored within a common fundamental data structure encapsulating the associated data instances, which are stored in not-tabular form on a computer-readable media” (Abineri, Paragraphs 0061 and 0067 in view of White Figure 1 and Column 4 Lines 47-55).

As per claim 83, Abineri is directed to the method of claim 82 wherein said converting is through a software agent. The whole system of Abineri is a software agent.

As per claim 84, Abineri is directed to the limitation:

“ wherein said non-data instance centric database includes a flat file” (Paragraph 0106).

Claims 85-87 are rejected on the same basis as claim 1.

As per claim 89, White teaches the limitation:

“wherein said references to associated items are arranged in sets defining the type of association between said item and each of said other items referenced in said set” (Figure 3 and Column 7 Line 44-61 “Relation Type Table Entry”).

As per claim 92, White teaches the limitation:

“wherein said items may act as containers for one more member items” (Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43).

8. Claims 5, 8, 18-24, 31-34, 36, 47-48, 50-52, 54-60, 62, 88, 90, and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Abineri and further of Kroenke et al. (hereinafter “Kroenke”)(U.S. Patent Number 5809297).

Referring to claim 5, White in view of Abineri teaches the limitations:

“ wherein a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance on said computer-readable media;”

“wherein each of said encapsulated references is a logical index which uniquely identifies each of said associated encapsulated data instances and also encodes the location (“pointers or keys”) of each of said associated encapsulated data instances” (White et al., “pointers or keys”, Column 7 Line 5-11).

White in view of Abineri does not explicitly teach the limitation: “wherein said logical index is ‘m’ dimensional, and has ‘n’ bits per dimension”.

On the other hand, Kroenke teaches the limitation:

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“wherein said logical index is ‘m’ dimensional, and has ‘n’ bits per dimension” (Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17). Kroenke teaches an object data model for semantic relationships wherein such logical indexes (attributes) “m” dimensional (Kroenke et al., Figure 2 and Column 6 Line 26-65) and has “n” bits per dimension (Kroenke et al., “length”, Column 14 Line 4-17).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the details for creating attributes for a semantic object as taught by Kroenke et al. with the system and method taught by White in view of Abineri as applied to claim 1 above so that the combined system would comprise logical indexes which are “m” dimensional and has “n” bits per dimension. One would have been motivated to do so in order to obtain “a system that allows a user to create a relational database schema in a way that does not require the user to be familiar with the underlying database technology or rules for defining a database”, thereby enabling the user “to define the data to be stored in a way that mirrors the user’s view of the data” (Kroenke et al., Column 2 Line 9-16).

Referring to claim 8, the system and method of White in view of Kroenke teaches the limitation:

“wherein each of said at least one dimensions has a plurality of said encapsulated references” (White, Column 7 Lines 5-11, Column 7 Lines 45-52 and Kroenke, Column 6 Line 26-65).

Referring to claim 18, Kroenke teaches the limitation:

“wherein said encapsulated references of at least one of the encapsulated data instances are unique and said encapsulated references of at least two of the encapsulated data instances are generally identical” (Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17).

As per claim 19, White teaches the limitation:

“wherein including a plurality of pre-existing encapsulated data instances, having established associations, wherein at least one new encapsulated data instance is associated with at least one of said pre-existing encapsulated data instances” (Column 5 Line 3-32).

White in view of Kroenke teaches an object database model (White et al., Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (White et al., Column 5 Line 5-10). Being an object database model, said objects encapsulate semantic attributes (semantic relations between/among the objects) along with other attributes. Said objects can be created or destroyed repeatedly. Therefore, said objects (encapsulated data instances) can pre-exist and more such objects can be created at will, establishing relationships between/among those pre-existing and new objects.

As per Claim 20, white teaches the limitation:

“wherein including a plurality of pre-existing encapsulated data instances, having established associations, wherein any of said preexisting encapsulated data instances can be removed disassociated from other pre-existing associated encapsulated data instances can be removed and disassociated fro other per-existing associated encapsulated data instances” (Column 5 Line 5-10). White teaches an object database model (Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (Column 5 Line 5-10). Being an object database model, said objects can be removed/dissociated from any other objects (pre-existing or otherwise).

Claim 21 is rejected on the same basis as claim 19. White teaches an object database model (Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (Column 5 Line 5-10). Being an object database model, attributes of the objects can be arbitrarily changed. In other words, new associations between objects (pre-existing or otherwise) can be added.

Claim 22 is rejected on the same basis as claim 19. White teaches an object database model (Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (Column 5 Line 5-10). Being an object database model, attributes of the objects can be arbitrarily

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changed. In other words, associations between objects (pre-existing or otherwise) can be removed.

Referring to claim 23, White in view of Kroenke teaches the limitations:

“a search capability for finding specific unknown encapsulated data instances from a selection criteria of known encapsulated data instances by accessing said known encapsulated data instances representing said selection criteria” (White Column 23 Lines 42-50 and Kroenke Column 12 Lines 15-44) “comprising the steps of”:

“accessing references encapsulated with said known encapsulated data instances representing said selection criteria” (White Column 23 Lines 42-50 and Kroenke Column 12 Lines 15-44);

“using Boolean operations to compare said accessed encapsulated references to find references to said specific unknown encapsulated data instances” (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44); and

“retrieving said specific unknown encapsulated data instances” (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44).

Referring to claim 24, White in view of Kroenke teaches the limitations:

“said encapsulated references are embodied as logical indexes in a plurality of dimensions” (White, *pointers or keys* in Column 7 Line 5-11), “each of said dimensions corresponding to a type of association” (White Column 5 Line 3-25 and Column 6 Line 22-43), wherein said accessing further comprises accessing said encapsulated

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references from said dimensions specified in said selection criteria" (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44).

Referring to claim 31, White teaches the limitation:

"wherein said encapsulated data instances have attributes of a user interface" (Column 5 Line 30-32 and Column 10 Line 12-60).

Claim 32 is rejected on the same basis as claim 31.

Claim 33 and 34 are rejected on the same basis as claim 23.

Referring to claim 36, White in view of Kroenke teaches the limitations:

"a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance" (White Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43);

"wherein each of said encapsulated references is a logical index which uniquely identifies each of said associated encapsulated data instances and also encodes the location of each of said associated encapsulated data instances on said computer readable media" (White, *pointers or keys*, Column 7 Line 5-11); and

"wherein said logical index is `m` dimensional, and has `n` bits per dimension" (Kroenke, *length*, Column 14 Line 4-17);

“the encapsulated references of two or more different encapsulated data instances compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results” (White Column 23 Line 42-50 and Kroenke Column 12 Line 15-44).

Claim 47 is rejected on the same basis as claim 23.

Claim 48 is rejected on the same basis as claim 33.

Claim 50 is rejected on the same basis as claim 23.

Referring to claim 51, White in view of Kroenke teaches the limitations:

“said encapsulated references of at least one of said encapsulated data instances is unique and said encapsulated references of at least two of said encapsulated data instance are generally identical” (Kroenke, Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17); and

“searching said system wherein said encapsulated references of different said encapsulated data instances are used to derive desired results” (White Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

Claim 52 is rejected on the same basis as claim 5.

Claim 54 is rejected on the same basis as claim 23.

Claim 55-58, and 60 are rejected on the same basis as claim 33.

Claim 59 is rejected on the same basis as claim 23.

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Claim 62 is rejected on the same basis as claim 18.

Claim 88 and 90 are rejected on the same basis claim 5.

As per claim 93, White teaches the limitation:

“wherein the membership of an item within a container item is indicated by an identity in one or more said “m” dimensions in said logical index of said container item and each of said member items” (*Type Table Entry* in Column 7 Lines 8-10, Column 5 Lines 48 through Column 6 Line 21, and Column 7 Lines 18-38).

9. Claim 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Abineri and further in view of Kroenke et al. and further in view of Walker et al. (hereinafter “Walker”) (U.S. Patent Application Publication Number 2003/0216169).

Referring to claim 27, White in view of Abineri and further in view of Kroenke does not explicitly disclose the limitation:

“said Boolean operations further comprise: basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation”.

Walker teaches the limitation:

“said Boolean operations further comprise: basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation” (Paragraphs 0045-0046).

At the time the invention was made, it would have obvious to a person of ordinary skill in the art to add the feature of combining Boolean operations with basic mathematical operations as taught by Walker to the system and method taught by White in view of Abineri and further in view of Kroenke et al. as applied to claim 23 so that, in the resultant method, Boolean operations would further comprise basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation. One would have been motivated to do so simply to reduce execution time.

Claim 28-30 is rejected on the same basis as claim 27.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Abineri and further in view Bielak et al. (hereinafter “Bielak”) (U.S. Patent Number 5873049).

Referring to claim 40, White in view of Abineri as applied to claim 1 does not explicitly disclose the limitation:

“a plurality of encapsulated data instances representing ASCII characters”;

“said common fundamental data structures containing said encapsulated data instances representing ASCII characters also containing encapsulated references to encapsulated data instances using one or more of said ASCII characters;” and

“said common fundamental data structures containing encapsulated data instances using one or more said ASCII characters also containing encapsulated references to said encapsulated data instances representing said used ASCII characters”.

Bielak teaches the limitations:

“a plurality of encapsulated data instances representing ASCII characters”;

“said common fundamental data structures containing said encapsulated data instances representing ASCII characters also containing encapsulated references to encapsulated data instances using one or more of said ASCII characters;” and

“said common fundamental data structures containing encapsulated data instances using one or more said ASCII characters also containing encapsulated references to said encapsulated data instances representing said used ASCII characters” (Bielak, Column 12 Line 64 through Column 13 Line 12). Bielak et al. teaches a system and method for persistent databases, wherein ASCII characters are encapsulated in data objects (Column 12 Line 64 through Column 13 Line 12).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of encapsulating ASCII characters in data objects as taught by Bielak with the system of White in view of Abineri as applied to claim 1 so that the combined system further comprise encapsulated data instances

representing ASCII characters, wherein common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters. One would have been motivated to do so simply because object-oriented model could encapsulate any kind of data, including ASCII characters which are more human-readable than other data types.

11. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Abineri and further in view Eversole et al. (hereinafter "Eversole")(U.S. Patent Application Publication Number 2003/0076978).

Referring to claim 42, White in view of Abineri does not explicitly disclose the limitations:

"a plurality of encapsulated data instances representing Unicode Characters";

"said common fundamental data structures containing said encapsulated data instances representing Unicode characters also containing encapsulated references to encapsulated data instances using one or more said corresponding Unicode characters;" and

"said common fundamental data structures encapsulated data instances using one or more of said Unicode characters also contains encapsulated references to said

data instances representing said used Unicode characters”.

Eversole teaches the limitations:

“a plurality of encapsulated data instances representing Unicode Characters”;

“said common fundamental data structures containing said encapsulated data instances representing Unicode characters also containing encapsulated references to encapsulated data instances using one or more said corresponding Unicode characters,” and

“said common fundamental data structures encapsulated data instances using one or more of said Unicode characters also contains encapsulated references to said data instances representing said used Unicode characters” (Eversole, Paragraph 0043). Eversole et al. teaches a method for extensible file format, wherein Unicode characters are encapsulated in data objects (Eversole et al., Paragraph 0043).

At the time the invention was made, it would have been obvious to a person ordinary skill in the art to combine the feature of encapsulating Unicode characters in data objects as taught by Eversole et al. with the system of White in view of Abineri as applied to claim 1 so that the combined system further comprise encapsulated data instances representing Unicode characters, common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contains encapsulated references to said data instances representing corresponding

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Unicode characters. One would have been motivated to do so object-oriented model could encapsulate any kind of data, including Unicode characters which are more human-readable than other data types.

12. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Abineri and further in view Shwartz et al. (hereinafter "Shwartz") (U.S. Patent Number 5812840).

Referring to claim 44, White in view of Abineri as applied to claim 1 does not explicitly teach the limitations:

"a plurality of encapsulated data instances representing the tokens of a token set of any data type;"

"said common fundamental data structures containing said data instances representing said tokens also containing encapsulated references to encapsulated data instances using one or more of said tokens" and

"said common fundamental data structures containing encapsulated data instances using one or more of said tokens also containing encapsulated references to said encapsulated data instances representing said used tokens" .

Shwartz teaches the limitations:

"a plurality of encapsulated data instances representing the tokens of a token set of any data type;"

“said common fundamental data structures containing said data instances representing said tokens also containing encapsulated references to encapsulated data instances using one or more of said tokens;” and

“said common fundamental data structures containing encapsulated data instances using one or more of said tokens also containing encapsulated references to said encapsulated data instances representing said used tokens” (Column 22 Lines 13-16) . Shwartz et al. teaches a method and system for database query, wherein a set of encapsulated variables are included in an object data structure (“a blackboard”).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of encapsulating token set of any data type in data objects as taught by Shwartz et al. with the system of White in view of Abineri as applied to claim 1 so that the combined system further comprise encapsulated data instances representing a token set of any data type. One would have been motivated to do so simply because object-oriented model could encapsulate any kind of data.

13. Claim 17, 49, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Abineri and further in view of Silberberg et al. (hereinafter “Silberberg”) (U.S. Patent Number 6957214).

Referring to claim 17, White in view of Abineri does not explicitly teach the limitation:

“wherein at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment.”

Silberberg teaches the limitation:

““wherein at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment” (Column 5 Line 48 through Column 6 Line 54). Silberberg et al. discloses architecture for distributed database information access wherein data instances are located in different computing environments (Column 5 Line 48 through Column 6 Line 54).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature for accessing data instances in different computing environments as taught by Silberberg et al. with the system taught by White in view of Abineri applied to claim 1 above so that, in the combined system, at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment. One would have been motivated to do so in order to access “information from a plurality of diverse data sources” (Silberberg et al., Column 4 Line 7-9).

Claim 49 and 61 are rejected on the same basis as claim 17.

14. Claims 94-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Abineri and further in view of Suver (U.S. Patent Number 6016497).

Referring claim 94, White in view of Abineri does not explicitly teach that the limitation:

“wherein each of said items may encapsulate embedded elements.”

Suver teaches the limitation: “wherein each of said items may encapsulate embedded elements” (Column 10 Line 9-27). Suver teaches a method and system for storing and accessing embedded information in object-relational databases wherein data instances encapsulate embedded elements (Column 10 Line 9-27).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of embedding elements in object-relational databases as taught by Suver with the system and method of claim 85 as taught by White in view of Abineri so that, in the combined system and method, items would encapsulate embedded elements. One would have been motivated to do so in order to “allow for storing and access of embedded complex information in both the relational data modeling and object-oriented data modeling” (Suver, Column 2 Line 44-48).

Referring to claim 95, Suver teaches the limitation:

“wherein said embedded elements are references to other items” (Column 10 Line 9-27).

Referring to claim 96, Suver teaches the limitation:

“wherein said data instances may contain data of any type” (Column 10

Line 9-27).

Allowable Subject Matter

15. Claims 25-26, 35, 37, 41,43, 45, 46 and 91 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

The following is a statement of reasons for the indication of allowable subject matter. Referring to claims 25, White in view of Abineri and further in view of Kroenke et al. is directed to the system and method of claim 23, comprising:

a. finding specific unknown encapsulated data instances from a selection criteria of known encapsulated data instances by accessing said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

b. accessing references encapsulated with said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

c. using Boolean operations to compare said accessed encapsulated references to find references to said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44); and

d. retrieving said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

However, White in view of Abineri and further in view of Kroenke et al. fails to teach what claim 25 of the claimed invention recites that, in the said system and method of claim 23, said encapsulated references are `m` dimensional logical indexes each of which uniquely identifies and encodes the location of said associated encapsulated data instances on said computer readable media, wherein said encapsulated references are filtered by Boolean operations on at least one of said `m` dimensional logical indexes.

Therefore, claim 25 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claims 26, White in view of Abineri and further in view of Kroenke et al. is directed to the system and method of claim 24, wherein:

- a. said encapsulated references are embodied as logical indexes in a plurality of dimensions (White et al., "pointers or keys", Column 7 Line 5-11) ;
- b. each of said dimensions corresponds to a type of association (White et al., Column 5 Line 3-25 and Column 6 Line 22-43); and
- c. said accessing further comprises accessing said encapsulated references from said dimensions specified in said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

However, White in view of Abineri and further in view of Kroenke et al. fails to teach what claim 26 of the claimed invention recites that, in the said system and method of claim 24, said encapsulated references are `m` dimensional logical indexes each of which uniquely identifies and encodes the location of said associated encapsulated data

instances on said computer readable media, wherein said encapsulated references are filtered by Boolean operations on at least one of said 'm' dimensional logical indexes.

Therefore, claim 26 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claim 35, White in view of Abineri and further in view of Kroenke et al. is directed to the system of claim 34 wherein encapsulated references of different said encapsulated data instances are compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results. However, White in view of Abineri and further in view of Kroenke et al. fails to teach what claim 35 of the claimed invention recites that, in the said system and method of claim 34, the encapsulated references of two or more different encapsulated data instances are stored in an order based on value and are compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results.

Therefore, claim 35 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claim 37, White in view of Abineri and further in view of Kroenke et al. is directed to the system of claim 33 wherein encapsulated references of different said encapsulated data instances are used to derive desired results. However, White in view of Abineri and further in view of Kroenke et al. fails to teach what claim 37 of the

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claimed invention recites that, in the said system and method of claim 33, each of said at least one dimensions has a plurality of said encapsulated references; and said encapsulated references of two or more different encapsulated data instances are stored in an order based on value and are compared for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results.

Therefore, claim 37 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claim 41, White in view of Abineri and further in view of Bielak et al. as applied to claim 40 teaches that the system comprises encapsulated data instances representing ASCII characters, wherein common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters.

However, White in view of Abineri and further in view of Bielak et al. as applied to claim 40 does not teach that said encapsulated references with a given ASCII character data instance refer to other encapsulated data instances using said ASCII characters.

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based on the position of said given ASCII character in the sequence of said ASCII characters in said encapsulated data instances.

Therefore claim 41 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claim 43, White in view of Abineri and further in view of Bielak et al. as applied to claim 42 teaches that the system comprises encapsulated data instances representing Unicode characters, wherein common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding Unicode characters also contains encapsulated references to said encapsulated data instances representing corresponding Unicode characters.

However, White in view of Abineri and further in view of Bielak et al. as applied to claim 42 does not teach that said encapsulated references with a given Unicode character data instance refer to other encapsulated data instances using said Unicode characters based on the position of said given Unicode characters in the sequence of said Unicode characters in said encapsulated data instances.

Therefore claim 43 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claim 45, White in view of Abineri and further in view of Bielak et al. as applied to claim 44 teaches that the system comprises encapsulated data instances representing token set of any data type, wherein common fundamental data structures containing said encapsulated data instances representing token set of any data type also contain encapsulated references to encapsulated data instances containing said corresponding token set of any data type, and said common fundamental data structures containing said encapsulated data instances containing said corresponding token set of any data type also contains encapsulated references to said encapsulated data instances representing corresponding token set of any data type.

However, White in view of Abineri and further in view of Bielak et al. as applied to claim 44 does not teach that said encapsulated references with a given token data instance refer to other encapsulated data instances using said token based on the position of said given token in the sequence of said tokens in said encapsulated data instances.

Therefore claim 45 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Referring to claim 91, White in view of Abineri and further in view of Kroenke et al. as applied to claim 90 fails to teach that, in the system of claim 90, "m" is 4 and "n" is 30. Therefore claim 90 is allowable if written in an independent form, assuming correction of the claim objections and claim rejections under 35 U.S.C. 101 above.

Conclusion

16. Applicant's arguments have been considered but are not persuasive.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

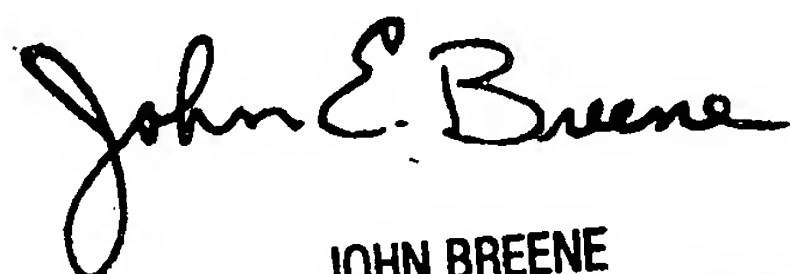
Contact Information

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30 AM - 5:30 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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